

WILDERNESS AREAS IN CALIFORNIA

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Every botanist in California must regret the rapid change in local floras or even extermination of various native plant areas in the Californian valleys and Coast Ranges which have had for so many years the greatest interest for field students in the west, and which were often sought out by scientific travelers from countries in Europe.

The native vegetation of California, especially that of the valleys and foothills, has been greatly altered during the last sixty years and the process is still going on. The factors involved in driving out the native flora are mainly three: first, agriculture in all its forms, which is exceedingly destructive; second, industrialism, which involves very considerable areas and is usually more complete as to annihilation than agriculture; third, the introduction by man, mainly unconscious, of alien plants, chiefly from the Mediterranean region, which are replacing the native plants in a large scale way. Alien plants have, for example in the Sierra Nevada foothills, replaced the native vegetation from 20 to 75 per cent of the ground cover in open country in many districts.

I do not at the moment recall any native species which has been absolutely exterminated as a result of these various changes, but certain plants have been so depleted that even a botanist finds it difficult to discover a few individuals in places where once they were common. The entrance of the automobile on the scene of the social structure has, to be sure, enabled city populations to gather more or less recklessly great quantities of the native flowering plants, some of which are often found useless after a few hours. The role of the automobilist is, however, confined to areas bordering the highways and as a result of his activity conspicuous species may become rare or exterminated only locally. The gathering of native plants by commercial firms for use horticulturally also results in more or less depopulation of local areas. In a few cases, however, the gathering of native plants for sale probably results in their eventual increase. For instance, certain lily bulbs cannot be taken from the ground without scaling extensively. Each of the scales is a potential plant and becomes such after a few years. A few species having somewhat similar organs are likewise increased by the operations of the plough but, in general, the effects of cattle, sheep, cultivation of the soil, alien immigrants and industrial sites are paramount in their adverse effect upon native plant societies.

While the high mountain country has been less altered by the forces mentioned than other parts of the state, yet it is probable that in the long run the deteriorating changes caused by the factors of civilized life will reach everywhere. It is, therefore, with the greatest satisfaction that botanists will learn that the United States Forest Service has caused to be set aside in California sixteen preserves to be designated as primitive areas where "no permanent

improvements of a recreational nature will be permitted" and only such roads and trails will be built as are necessary for fire protection and administration. These sixteen tracts comprise 1,744,412 acres.

The United States Forest Service in its policy of forest use in relation to recreation has always pursued a forward-looking and progressive policy—a policy worked out in the interests of the public at large, not merely for today but also with a wise foresight as to the decades ahead. A mighty landmark in Forest Service policy was made by William Greeley during the latter part of his tenure as Chief United States Forester when he refused a permit for the building of a scenic railway to the summit of Mount Hood in Oregon.

These primitive tracts are, to be sure, not set aside especially for botanists and yet perhaps for no other class of our citizens will the areas mean so much scientifically. They will in effect be natural gardens where the native vegetation may go on undisturbed by the factors which are so destructive at lower altitudes, as in the Great Valley. These areas, the list of which is furnished by the Forest Service, are as follows:

AGUA TIBIA, in San Diego County—25,910 acres, in the Cleveland National Forest, including part of the Agua Tibia range and peak of that name. From these mountains wonderful views can be obtained of the desert and ocean.

CARIBOU BUTTE, in Lassen and Plumas counties—16,442 acres, in the Lassen National Forest. This is a region of volcanic buttes with many interesting lava formations. Elevations from 6,000 to 7,000 feet.

CUCAMONGA, in San Bernardino County—5,000 acres in the San Bernardino National Forest. A region varying from rolling benches to steep cliffs, immediately adjacent to intensively used recreational centers. Elevations from 5,000 to 9,000 feet.

DESOLATION VALLEY, in Eldorado County—41,380 acres, in the Eldorado National Forest. Located in a high alpine country of granite peaks and skyline lakes, with elevations ranging from 6,500 to 10,120 feet.

DANA-MINARETS, in Mariposa, Madera and Mono counties—82,181 acres, in the Mono and Sierra national forests. A portion of the Minaret Range, including Mt. Dana, 13,050 feet, and Mt. Lyell, 13,090 feet, a region of perpetual snow, with gorges, mountain meadows, glaciers and glacial moraines, form the main features of this High Sierra country.

EMIGRANT BASIN, in Tuolumne County—98,044 acres, in the Stanislaus National Forest; on one of the routes of the covered-wagon pioneers. An area of rugged granite peaks, the highest being Leavitt Peak, 11,575 feet.

HIGH SIERRA, in Fresno, Tulare and Inyo counties—761,790 acres, in the Inyo, Sierra and Sequoia national forests. A region of perpetual snow with many mountain lakes; the headwaters of the Kings

River and other streams. Typical High Sierra country with elevations from 4,000 to 14,000 feet, and many peaks above 12,000 feet.

HOOVER, mostly in Mono County—20,540 acres, located in the Mono National Forest along the crest and east side of the High Sierra. Contains many mountain lakes, meadows and numerous peaks over 13,000 feet elevation.

MARBLE MOUNTAIN, in Siskiyou County—237,527 acres, in the Klamath National Forest, so called because of the limestone formation which resembles white marble. A high wilderness country with many lakes and streams.

MIDDLE EEL-YOLLA BOLLY, mostly in Trinity County—143,386 acres, in the California and Trinity national forests. Located on the headwaters of the Trinity River and smaller streams. A country of virgin forests and rugged topography with several high peaks.

SALMON-TRINITY ALPS, in Trinity, Siskiyou and Shasta counties—196,420 acres, in the Klamath, Shasta and Trinity national forests. A region of granite peaks ranging from 7,000 to 8,000 feet, with remnants of former glaciers and showing the results of glacial action. Contains many alpine lakes and streams.

SAN GORGONIO, in San Bernardino County—20,000 acres, in the San Bernardino National Forest along the summit of the San Gorgonio Range. Elevations vary from 7,000 to 11,485 on San Gorgonio Peak, the highest mountain in southern California. Topography rough and broken and in some places precipitous.

SAN JACINTO, in Riverside County—23,291 acres, in the San Bernardino National Forest. A picturesque region surrounding San Jacinto Peak, 10,805 feet, from whose summit can be had a wide view of mountains and deserts.

SOUTH WARNER, in Modoc County—70,682 acres, in the Modoc National Forest. Located on a high ridge, 15 miles long, overlooking the Nevada deserts. This ridge is a "fault" which resulted in the formation of the Warner Mountains. There are many glacial lakes and peaks over 9,000 feet.

THOUSAND LAKE VALLEY, in Shasta County—16,335 acres, in the Lassen National Forest. A rugged timbered area surrounding McGee Peak, containing many lakes scattered in the pine and fir forest.

VENTANA, in Monterey County—45,520 acres, in the Monterey Division of the Santa Barbara National Forest. A rough country with elevations from 1,200 to 4,800 feet on the headwaters of the Carmel and Big Sur rivers.

FIELD NOTE ON A DESERT WASH

JOHN THOMAS HOWELL

A SAN FELIPE VIGNETTE. A collecting trip to the San Felipe Wash on the western borders of the Colorado Desert in November, 1927, disclosed still the destructive force and evident ravages of floods which swept through the region during the preceding winter. Canyon